

## **SECTION 1 - OVERVIEW**

### **1.1 CITY BACKGROUND**

#### ***1.1.1 City Organization***

Sugar Land is a full-service municipality providing the highest quality of affordable services to meet the needs of its citizens. Sugar Land is an economically strong and culturally diverse community of approximately 70,000 residents. Sugar Land ranks number one in growth among municipalities in the Houston metro area and number one in growth among the state's 45 largest cities. The City was incorporated in 1959 and adopted a home rule form of government.

A home rule charter may provide for establishment of type of government, specify the number of members, allow annexation, set property tax rates, and may authorize any other function, responsibility, or provision provided they are not specifically prohibited by the state constitution or laws. This gives municipalities like Sugar Land broad powers of enforcement and the ability to establish ordinances to regulate the various stormwater program elements.

The home rule charter, as amended, provides for a council-manager government, which includes a mayor and six council members who are elected for a term of two years, with a term limit of four consecutive terms. Under this system, Council appoints the City Manager, who acts as chief executive officer of the government. The Mayor and two council members are elected at-large in even years, and the remaining four council members are elected by single member district in odd years. The Mayor and City Council establish goals and priorities each fiscal year, while the City Manager implements those objectives established by the governing body. The City Manager carries out policy and administers City programs. All department heads are ultimately responsible to the City Manager.

#### ***1.1.2 Key Personnel***

The City is uniquely positioned to implement a stormwater program due to existing personnel and resources available in the various City departments. Existing City departments currently performing functions generally associated with the implementation of a stormwater program include Public Works, Development Services, Parks & Recreation, Finance & Administration, Municipal Courts, City Manager's Office and Communications.

In addition, the City of Sugar Land partners with the non-profit organization Keep Sugar Land Beautiful (KSLB) to carry out some of its environmental public outreach and education programs. Through its affiliation with Keep Texas Beautiful and Keep America Beautiful, KSLB's programs help motivate volunteers to improve their neighborhoods and create a healthier, safer, and more livable environment. KSLB will be

available to assist the City with public education and outreach pertaining to the Stormwater Management Plan.

The existing City departments have the ability to perform most of the elements comprising a comprehensive stormwater program with minimal additional personnel costs.

The City will evaluate the need to create a Stormwater Management Team so that City employees in participating departments can remain actively involved in developing and implementing the program. This team would be established in Permit Year 1 and would meet monthly or quarterly, as needed, throughout the permit term. The Stormwater Management Program (SWMP) Coordinator in the Public Works Department would facilitate these meetings and coordinate SWMP activities.

### ***1.1.3 City Drainage Operations***

The City of Sugar Land recognizes the importance of consistent, uniform and integrated management of stormwater operations, design standards, and capital improvements within its jurisdiction.

The Street/Drainage Division within the Public Works Department is responsible for the administration and operation of the City's public streets, sidewalks, bridges, and drainage system.

The Street/Drainage Division infrastructure responsibilities include:

- 802 lane miles of streets
- 296 acres of rights-of-way and drainage easements mowed
- 344 miles of sidewalks
- 216 miles of storm sewer/open ditches
- 5,450 storm inlets
- 796 lane miles of concrete and asphalt streets
- 31 bridges

The Street/Drainage Division is responsible for contract development, administration, and inspection of street sweeping services provided to arterial streets, major collector streets and TxDOT intersections of City streets. The primary objective of the street-sweeping program is to provide routine sweeping and cleaning of high traffic areas throughout the City where accumulations of debris occur.

The Division is also responsible for the mowing of approximately 296 acres of public rights-of-way (ROW) and drainage easements throughout the City. Rough cut mowing is done 15 times throughout the year, and groom cut mowing is done on an as-needed basis.

The Street/Drainage Division is responsible for the inspection and maintenance of 216 miles of storm sewer lines and open ditches. This division is also responsible for inspecting and cleaning 5,450 storm inlets during and after rain events. In addition, the division is responsible for maintaining a positive flow for all open ditches. Periodic re-grading is required when the ditches become overly silted and stagnant.

#### ***1.1.4 MS4 Jurisdictional Overlap***

The City of Sugar Land's drainage operations has jurisdictional overlap with several levee improvement districts (LIDs) and Fort Bend County.

There are several LIDs that are partially or fully located within the corporate City limits of Sugar Land. These LIDs have the similar authority and responsibility over drainage operations within their boundaries as the City. These LIDs are considered MS4s and are subject to the NPDES stormwater requirements. The City will coordinate with the LIDs and work through the political ramifications of these overlays to minimize duplication of effort in Phase II compliance.

Stormwater and drainage activities in Fort Bend County are implemented through the Fort Bend County Drainage District (Drainage District). Funding for all Drainage District activities are approved by the Drainage District Board (Commissioners Court). The primary mission of the Drainage District is to maintain the drainage channels, where the Drainage District has easements, in their existing flow conditions. The Drainage District accomplishes this through appropriate structural repairs and vegetation control. Secondly, the Drainage District provides a review of plats and drainage plans of new development to be approved by Commissioners Court to assure the elimination of an adverse drainage impact on current and future residents.

The Drainage District's primary activities are associated with flood control in Fort Bend County. The Drainage District does not own or maintain storm sewer systems or drainage facilities other than channels. The Drainage District is well equipped to maintain large drainage channels and does so today for approximately 1,100 miles. However, they are currently not well positioned to be the primary entity for implementing a comprehensive stormwater program including all the Minimum Control Measures (MCMs).

While Fort Bend County is considered an MS4, subject to the NPDES stormwater requirements, and plays an important role in the overall development of a stormwater program for Sugar Land, their organizational structure and overall mission is not considered to be an efficient model for developing a comprehensive stormwater program. The Drainage District should be included in any discussions concerning a program in Sugar Land and potentially could provide some service to the program, especially related to maintenance, if needed in the future.

## **1.2 STORMWATER MANAGEMENT**

### ***1.2.1 Introduction to Stormwater Management***

Stormwater management is an essential component of community infrastructure and serves to provide both increased convenience and protection of lives and property. A properly designed system will detain and/or carry away runoff from rainfall events while allowing the movement of vehicles to homes and businesses. The City's storm sewer system was designed to capture and transport rain water runoff into local creeks and rivers to prevent street and neighborhood flooding.

Active management of stormwater by local jurisdictions can protect public health and create a more attractive community. Drainage systems influence the water quality of the natural waterways that receive the area's rainfall runoff. Creeks, rivers, and bays provide wildlife habitat and support commercial and recreational fisheries, boating and nature tourism. They are fundamental to the quality of life in this region.

Stormwater runoff can cause water pollution by carrying pollutants into the water supply. According to a report on water quality by the EPA, approximately 40 percent of the rivers, lakes, and estuaries that have been assessed by environmental protection agencies are not meeting water quality standards. The report found that urban runoff and discharges from storm sewers are major sources of water quality problems.

Providing Sugar Land with a stormwater management system that allows sustainable community growth is a continuing challenge. It involves educating residents, setting minimum standards, planning for future detention basins and drainage channels, working with private development interests, coordinating with governmental agencies, and maintaining the efficiency of the existing system of culverts, pipes, and other structures.

Recognizing that stormwater system development should be guided by adopted policies and a comprehensive plan, the City of Sugar Land has developed this Five-Year Stormwater Management Plan to address the issue.

### ***1.2.2 Benefits of Stormwater Management***

By more effectively managing stormwater runoff, local governments can protect public health, spur economic development, and create a more attractive community. Contamination of community drinking water threatens public health and causes significant cleanup expense. Preventing contamination of drinking water avoids the costs of additional treatment facilities, locating new drinking water sources, and restoring citizens' confidence in their drinking water, public utilities, and community leaders.

Many techniques that local governments use to address stormwater can also double for recreational purposes. Natural vegetation buffers preserved along rivers and other bodies of water can provide ideal locations for hiking trails. Stormwater detention ponds can double as bird-watching hot spots. Open spaces preserved for drainage can be used for soccer fields, golf courses, and picnic spots.

## **1.3 STORMWATER REGULATION**

### ***1.3.1 History of Stormwater Regulation***

The Environmental Protection Agency (EPA), under the Clean Water Act (CWA), regulates stormwater discharges by issuance of National Pollutant Discharge Elimination System (NPDES) permits. The 1972 amendment to the CWA prohibits discharge of any pollutant into the waters of the United States from a point source unless the discharge is authorized by a NPDES permit. The NPDES program initially targeted easily detected sources of water pollution such as municipal sewage and industrial process wastewater and was successful in improving water quality. However, the NPDES program was not addressing other significant sources of water quality impairment – nonpoint sources such as runoff from agricultural and forestry operations, and stormwater runoff.

Congress further amended the CWA in 1987 and required the EPA to establish NPDES requirements for stormwater discharges. A comprehensive, two-phase approach to stormwater control was established. On November 15, 1990, the EPA published (55 Federal Register 47990) initial permit application for 11 categories of stormwater discharges associated with industrial activity and from drainage systems located in municipalities with a population of 100,000 or more. The Phase I stormwater regulations required large sources of stormwater discharge to apply for NPDES permits. Large sources include medium and large municipal storm sewer systems usually serving 100,000 people or more, as well as several categories of industrial activity including construction activity disturbing five or more acres of land.

In 1998, the Texas Commission for Environmental Quality (TCEQ) was delegated authority to administer the NPDES permitting program in Texas. The Texas Pollutant Discharge Elimination System (TPDES) program now has federal regulatory authority over discharges of pollutants to Texas surface waters.

The NPDES Phase II rule, promulgated in December 1999, expanded the scope of the NPDES program to include smaller local governments. Sugar Land and other small municipalities (population under 100,000) that manage their stormwater facilities are regulated as Phase II municipalities under the NPDES/TPDES municipal separate storm sewer system (MS4) permit requirements. The TCEQ is expected to issue a General Permit for stormwater discharges from Phase II cities in Texas in late 2004. Phase II cities will be required to obtain permit coverage within 90 days of the permit issuance date. The permit term will cover five years.

Under the Phase II stormwater regulations, a SWMP must be developed for Sugar Land, to the extent allowable under state and local law, and implemented according to the requirements of Part III of General Permit TXR040000 for stormwater discharges that reach Waters of the United States. The SWMP should be developed to prevent pollution in stormwater to the maximum extent practicable and effectively prohibit illicit discharges to the system.

The final rule requires the permittee to choose *appropriate* best management practices (BMPs) for each of six MCMs. In other words, the EPA expects Phase II permittees to tailor their stormwater management plans and their BMPs to fit the particular characteristics and needs of the permittee and the area served by its MS4. Therefore, the operator of a regulated storm sewer system can take advantage of the flexibility provided by the rule to utilize the most suitable MCMs for its MS4.

To qualify for permit coverage, the MS4 must develop a SWMP that describes the BMPs they will develop and implement to minimize the discharge of pollutants from the MS4 to the maximum extent practicable. The SWMP must address BMPs in the following subject areas or MCMs:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Control of Construction Site Runoff
- Post-construction Stormwater Management
- Pollution Prevention and Good Housekeeping

Sugar Land qualifies as a Phase II MS4 and must obtain permit coverage. This report describes recommended BMPs that will be incorporated into the SWMP and implemented by the City of Sugar Land.

### ***1.3.2 NPDES Phase II Minimum Control Measures***

To qualify for permit coverage, Sugar Land must develop a SWMP that addresses six MCMs. These subject areas are:

- 1) *Public Education and Outreach* – The MS4 is required to develop and implement a Public Education Program, or equivalent outreach activities, to distribute information to the community about effects of stormwater discharges on water bodies and steps the public can take to reduce pollutants in stormwater runoff.
- 2) *Public Involvement and Participation* – The MS4 is required to, at a minimum, comply with State/Local notice requirements and is recommended to include the public in developing, implementing, and reviewing the SWMP and engage all economic and ethnic groups.
- 3) *Illicit Discharge Detection and Elimination* – The MS4 must develop, implement, and enforce a program to detect and eliminate illicit discharges including:
  - Storm sewer system map with location of all outfalls
  - Ordinance (or other regulatory mechanism) prohibiting illicit discharges
  - Enforcement procedures/actions
  - Detect and address illicit discharges (including illegal dumping)
  - Inform employees, businesses and general public

- 4) *Control of Construction Site Runoff* – The MS4 is required to develop, implement and enforce a program to reduce pollutants in runoff from construction activities disturbing greater than or equal to one acre (including smaller sites that are part of a greater common plan of development), with:
  - Ordinance (or other regulatory mechanism), sanctions
  - Procedures
  - Require construction site operators to implement erosion and sediment control BMPs and to control waste
- 5) *Post-Construction Stormwater Management* – The MS4 is required to develop, implement and enforce a program for stormwater runoff from New/Redevelopment projects that disturb greater than or equal to one acre (including smaller sites that are part of a greater common plan of development), with:
  - Ordinance (or other regulatory mechanism) to address post-construction runoff
  - Structural and non-structural BMPs appropriate to the community
  - Ensure adequate long-term operation and maintenance
- 6) *Pollution Prevention and Good Housekeeping* – The MS4 is required to develop and implement an operation and maintenance program with the goal of preventing/reducing pollutant runoff from municipal operations. The program must have an employee training component.

For the SWMP, Sugar Land must identify BMPs that will be implemented over the five-year permit term, implementation schedule, responsible persons, and measurable goals by which the permittee will self-report progress in an Annual Report to the TCEQ. Existing programs or BMPs may also be used to fulfill the requirements of the general permit.

### ***1.3.3 Capacity and Authority of MS4s to Implement and Enforce MCMs and BMPs***

According to the EPA regulations at 40 CFR 122.34 (a), the MS4 permit will require, at a minimum, that the MS4 develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. The MCMs that have specific enforcement requirements are:

- *Illicit Discharge Detection and Elimination* – The illicit discharge MCM requires the MS4 to develop, implement, and enforce a program to detect and eliminate illicit discharges into the MS4. The MS4 must prohibit non-stormwater discharges into the storm sewer system and implement appropriate enforcement procedures and actions and develop and implement a plan to detect and address non-stormwater discharges, including illegal dumping, into the storm sewer system.
- *Construction Site Stormwater Runoff Controls* – The construction site runoff MCM requires the MS4 to develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the MS4 from construction activities that

result in a land disturbance of greater than or equal to one acre (or less than an acre if it is part of a larger common plan of development). The MS4 must have a regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance. Examples of sanctions to ensure compliance include non-monetary penalties, fines, bonding requirements, and/or permit denials for noncompliance.

- *Post-Construction Stormwater Management in New Development and Redevelopment* – The post-construction MCM requires the MS4 to develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre (including projects less than one acre that are part of a larger common plan of development). The program must ensure that controls are in place that would prevent or minimize water quality impacts. The strategy must include a combination of structural and nonstructural controls.

While an MS4 only has to develop an enforcement program to the extent allowable by state or local law, they must have a program that will reduce the discharge of pollutants from the MS4 to the maximum extent practicable, protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act. This will require effective enforcement mechanisms.